Capstone Project egenskaper

Unik: Grønn koder. Alt programvare orientert aksjeholdere, alt fra studenter til programvare utviklere.

Mål: Lage en nettside som fremmer bærekraftig programmeringspraksis på en inspirerende og lærerik måte. Og Hjelpe folk å programmere på en miljøvennlig måte.

Utgang: å lage en nettside er et konkret og målbart prosjekt

Begrenset ressurs: , tid, kunnskap, folk

Teamarbeid: tea

Komplekst:

Exercise 2: Stakeholder analysis

Stakeholders-   
Primary users: Software developers, Organisasjonen  
Secondary users: (klienter, brukere, ledere og

Interest among stakeholders:   
Primary interest will be among the software developers who wants access to sustainable coding,  
Secondary interest be among teachers and students who use it for educational reasons

Potensielle konflikter mellom stakeholderene kan være oppdateringer som kommer ut for sakte, og dermed skape spenning mellom utviklerne og sekundærinteressegruppene

Exercise 3: Project management areas

En prosjekt manager legger planer for hvordan et prosjekt skal gjøres og hvilket egenskaper prosjektet skal inneholde.

What aspects will you need to plan if you are responsible for implementing this project? Give a brief explaination

Prosjektledere, teamledere og avdelingsledere planlegger, overvåker, og koordinerer prosjektet, prosjektets ledere sørger for at prosjektoppgavene fullføres i tide, innenfor rammen og innfenfor budsjettet

Exercise 4: SWOT analysis

**SWOT Analysis:** (Alexander Jensen)

|  |  |
| --- | --- |
| **STRENGTHS** | **WEAKNESSES** |
| *E.g.:*   * *Work experience* * *Education* * *Technical skills* * *Personal characteristics* * *Personal network* | *E.g.:*   * *Limited work experience in IT* * *Limited education and skills in coding* * *Limited man* |
| **OPPORTUNITIES** | **THREATS** |
| *E.g.:*   * *Personal development* * *Training and education* * *Trends in the industry* * *Industries requiring one’s skills* * *Re-skilling to meet the needs of the industry* * *Building personal network and relationships* * *Ability to move to new geographical location* | *E.g.:*   * *Negative trends in the industry* * *Competition* * *Limited or extreme development in the industry* * *Lack of job opportunities in your field and location* |

**SWOT Analysis:** (Tord Ovesen Svendsen)

|  |  |
| --- | --- |
| **STRENGTHS** | **WEAKNESSES** |
| *E.g.:*   * *Technical skill* * *Education* * *Team work* | *E.g.:*   * *Experience coding* * *Little Project experience* * *time management* |
| **OPPORTUNITIES** | **THREATS** |
| *E.g.:*   * *Gain team coding experience* * *Experience project work* * *Gain experience in team work* | *E.g.:*   * *Time management* * *organizing* |

**SWOT Analysis:** (Marco Correia Svindland)

|  |  |
| --- | --- |
| **STRENGTHS** | **WEAKNESSES** |
| *E.g.:*   * *Work experience in IT* * *Education* * *Technical skills* * *Personal characteristics* * *Personal network* | *E.g.:*   * *Limited work experience* * *Limited education/ Irrelevant background* * *Negative personality attributes: Stubborn* |
| **OPPORTUNITIES** | **THREATS** |
| *E.g.:*   * *Personal development* * *Training and education* * *Industries requiring one’s skills* * *Re-skilling to meet the needs of the industry* * *Building personal network and relationships* * *Ability to move to new geographical location / work from home or remote* | *E.g.:*   * *Negative trends in the industry* * *Competition* * *Limited or extreme development in the industry*   *Limited jobs* |

**SWOT Analysis:** (Brage Helgeland Nilsen)

|  |  |
| --- | --- |
| **STRENGTHS** | **WEAKNESSES** |
| *E.g.:*   * *Teamplayer* * *Personal characteristics: Goal oriented, Stubborn,* | *E.g.:*   * *Limited work experience with IT* * *Limited education/ Irrelevant background* * *Lack of technical skills* * *Limited experience with project management* * *Time management* |
| **OPPORTUNITIES** | **THREATS** |
| *E.g.:*   * *Personal development* * *Training and education* * *Trends in the industry* * *Industries requiring one’s skills* * *Re-skilling to meet the needs of the industry* * *Building personal network and relationships* * *Worksplace flexability* | *E.g.:*   * *Negative trends in the industry* * *Competition* * *Lack of job opportunities in your field and location for people with limited work experience* |

**SWOT Analysis:** (Daniel Søderholm)

|  |  |
| --- | --- |
| **STRENGTHS** | **WEAKNESSES** |
| *E.g.:*   * *strength* | * *Limited work experience* * *Limited education/ Irrelevant background* * *Lack of technical skills* * *Negative personality attributes* * *Time mangement* |
| **OPPORTUNITIES** | **THREATS** |
| *E.g.:*   * *Personal development* * *Training and education* * *Trends in the industry* * *Industries requiring one’s skills* * *Re-skilling to meet the needs of the industry* * *Building personal network and relationships* * *Ability to move to new geographical location* | *E.g.:*   * *Limited access to training and education* * *Negative trends in the industry* * *Competition* * *Limited or extreme development in the industry* * *Lack of job opportunities in your field and location* |

Exercise 5 **Project Charter**

**PROJECT CHARTER**

**Project Overview**

| **Project Name:** | \_\_Capstone Project\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  
| **Project Sponsor:** | \_\_\_\_\_\_\_no one\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  
| **Date of Approval:** | \_\_\_\_\_\_TBD\_\_\_\_\_\_\_\_\_\_\_\_ | **Last Revision Date:** April

**Project Description**

**Scope**Involves making a webpage that helps people code in a more sustainable way, this project will span over a time period of 4 months.

**Business Case: ad revenue and donation**

**Constraints (in Priority Order)**

1. time
2. money
3. experience

**Project Deliverables**

* usefulness
* informasjon
* userfriendliness

Exercise 6

Planning:  
  
-Goal and objective of the project: : Lage en nettside som fremmer bærekraftig programmeringspraksis på en inspirerende og lærerik måte. Og Hjelpe folk å programmere på en miljøvennlig måte.

-Establishing project team and assigning roles and responsibilities:  
  
The project team will consist of Alexander, Marco, Tord, Brage and Daniel.

-Marco: Main responsibility will be Front-end, CSS, presentation of the website  
 -Tord: Main responsibility will be Front-end, presentation of the website  
-Alex: Main responsibility will be Html and framework of the website  
-Brage: Main responsibility will be html and framework of the website.  
-Daniel: To be decided…

Identifying Primary user, Secondary user, and additional stakeholders  
  
Primary users: Developers  
Secondary: Teachers, students etc.  
Additional stakeholders: Website users, website developers

Outlining the structure of the website:   
(Home Page, About Green Programming etc.): Selecting the appropriate technology/tools for the project. Home page, News section, learning green code section. Tools we would be able to use are the Innspill AI, canvas, html / css code and the appropriate coding tools

Selecting the appropriate technology/tools for the project

Tools we would be able to use are the Innspill AI, canvas, html / css code and the appropriate coding tools

Exercise 7  
  
Prosjektet vårt har flere krav som kommer fra forskjellige kilder. Disse inkluderer:

1. Tekniske krav: Dette er fra vår interne utviklingsteam og fokus på bærekraftig programmering. Nettsiden skal designes og utvikles på en måte som fremmer grønne programvareutviklingspraksis. Det innebærer å bruke energieffektive, miljøvennlige metoder og teknikker i koding og utvikling.
2. Innholds krav: Disse kommer fra våre primære og sekundære brukere (programvareutviklere, studenter og lærere i datavitenskap). Vi trenger å sikre at innholdet er pedagogisk, inspirerende og relevant for vårt publikum. Dette inkluderer emner som effektive algoritmer, optimalisert kode og bærekraftig webdesign.
3. Funksjonelle krav: Dette kommer fra våre endelige brukere. Nettstedet vårt må være tilgjengelig og funksjonelt for alle typer enheter og nettlesere. Dette inkluderer hensyn til brukergrensesnitt og brukeropplevelse.
4. Bærekraftige krav: Disse er selvpålagte og kommer fra vår forpliktelse til bærekraft. Vi vil at vårt prosjekt skal være så miljøvennlig som mulig, fra design til implementering, og vi inkluderer også case-study eksempler på grønne kodingspraksis.
5. Kvalitet og testing: Dette er interne krav for å sikre at nettstedet er av høyeste kvalitet. Vi vil ha omfattende brukbarhets- og systemtester for å sikre at det leveres uten feil og er klart til lansering ved prosjektslutt.

Exercise 8: User stories

1. "As a software developer, I want to understand the mission and importance of sustainable programming, so that I can appreciate its value and apply it to my work."
2. "As a student or teacher in computer science, I want quick links to different sections of the website, so that I can navigate and find the information I need efficiently."
3. "As a developer, I need educational blogs on efficient algorithms, optimized code, and sustainable web design, so that I can increase my knowledge and apply these concepts into my current projects."
4. "As a tech company, I want access to a sustainable practices toolkit, including tools, frameworks, and checklists for green programming, so that I can implement these practices in my company's software development process."
5. "As an environmental researcher, I'm interested in real-world examples of adopting green coding practices, so that I can understand their practicality and impacts."
6. "As a potential stakeholder, I want a contact form and FAQ section, so that I can get my queries answered and get in touch with the organization for collaborations or queries."
7. "As a user, I want the website to have a responsive design, so that I can access it from all devices."

Prioritizing User Stories:

* Priority 1: Understanding the mission and importance of sustainable programming. This is the heart of the project; we need to get the 'why' across first.
* Priority 2: Create a responsive design. This ensures that the site is accessible to anyone interested, regardless of the device they're using.
* Priority 3: Quick links for navigation. The easier it is for users to find what they're looking for, the better their overall experience.
* Priority 4: Create educational blogs. These deliver the core content for our users - they're where the learning happens!
* Priority 5: Develop a Sustainable Practices Toolkit. These tools are the 'how' and will drive home the practicality and efficacy of sustainable programming.
* Priority 6: Case Studies. These provide valuable context and inspiration for our users.
* Priority 7: Contact form and FAQ. These are important for the users to be able to raise their queries or issues.

Exercise 9: Work Breakdown Structure (WBS)  
  
1.0 GreenCode Initiative Website Project

1.1 Project Management 1.1.1 Project Planning 1.1.2 Team Coordination 1.1.3 Budget Management 1.1.4 Risk Management 1.1.5 Quality Assurance

1.2 Design and Development 1.2.1 Requirement Gathering 1.2.1.1 User Requirements 1.2.1.2 System Requirements 1.2.2 Design 1.2.2.1 UX/UI Design 1.2.2.2 Prototype Design (Figma) 1.2.3 Development 1.2.3.1 Frontend Development (HTML/CSS/JavaScript) 1.2.3.2 Optional Backend Development 1.2.3.3 Tools and Frameworks Integration (Green Web Foundation, CodeCarbon)

1.3 Content Creation 1.3.1 Research on Sustainable Practices 1.3.2 Blog Writing 1.3.3 Case Study Writing

1.4 Testing 1.4.1 Usability Testing 1.4.2 System Testing 1.4.3 Performance Evaluation

1.5 Publication 1.5.1 Final Implementation (Wix / WordPress) 1.5.2 Website Launch 1.5.3 After Launch Support and Maintenance

Exercise 10

1. Et bilde som inneholder tekst, sirkel, diagram, skjermbilde

   Automatisk generert beskrivelse
2. To start the calculations, the Earliest Starting time (ES) for the first activity is usually 0.
3. A (Market Research) ES(A) = 0 EF(A) = ES(A) + Duration(A) = 0 + 10 = 10 days
4. B (Requirement Analysis) ES(B) = EF(A) = 10 EF(B) = ES(B) + Duration(B) = 10 + 5 = 15 days
5. C (UI/UX Design) ES(C) = EF(B) = 15 EF(C) = ES(C) + Duration(C) = 15 + 15 = 30 days
6. D (Backend Development) ES(D) = EF(A) = 10 EF(D) = ES(D) + Duration(D) = 10 + 20 = 30 days
7. E (Database Setup) ES(E) = EF(B) = 15 EF(E) = ES(E) + Duration(E) = 15 + 10 = 25 days
8. F (API Integration) ES(F) = max {EF(D), EF(E)} = max {30, 25} = 30 EF(F) = ES(F) + Duration(F) = 30 + 10 = 40 days
9. G (Frontend Development) ES(G) = EF(C) = 30 EF(G) = ES(G) + Duration(G) = 30 + 25 = 55 days
10. H (Testing Phase 1) ES(H) = max {EF(F), EF(G)} = max {40, 55} = 55 EF(H) = ES(H) + Duration(H) = 55+5= 60 days
11. I (User Acceptance Testing) ES(I) = EF(H) = 60 EF(I) = ES(I) + Duration(I) = 60 + 10 = 70 days
12. J (Final Revision) ES(J) = EF(I) = 70 EF(J) = ES(J) + Duration(J) = 70 + 5 = 75 days
13. K (Launch Preparation) ES(K) = EF(J) = 75 EF(K) = ES(K) + Duration(K) = 75 + 5 = 80 days
14. L (App Launch) ES(L) = EF(K) = 80 EF(L) = ES(L) + Duration(L) = 80 + 1 = 81 days
15. The project's duration is 81 days, which is EF(L). The latest finish time (LF) for the last activity is the same as its earliest finish time.
16. Using backward pass (right-to-left), we start from the last activity.
17. LF(L) = EF(L) = 81 LS(L) = LF(L) - Duration(L) = 81 - 1 = 80 days
18. Continuing these calculations gives:
19. K (Launch Preparation) LF(K) = LS(L) = 80 LS(K) = LF(K) - Duration(K) = 80 - 5 = 75 days
20. J (Final Revision) LF(J) = LS(K) = 75 LS(J) = LF(J) - Duration(J) = 75 - 5 = 70 days
21. 4: Planning Phase: In this phase, we'll be doing the initial Market Research (Activity A) which lasts for 10 days. This phase is crucial because it will set the direction for your project.
22. Execution Phase: This phase can be broken down into several parts:
    * Requirement Analysis (Activity B) which lasts for 5 days. This will be initiated immediately after your Market Research.
    * UI/UX Design (Activity C) that would take 15 days, which starts right after the Requirement Analysis.
    * At the same time as 'UI/UX Design', the Backend Development (Activity D) can also start. This is a larger task and can last for 20 days.
    * While the Backend Development is in progress, Database Setup (Activity E) can begin. This task would take 10 days.
    * Once both the Backend Development and Database Setup are completed, API Integration (Activity F) can start and this would take 10 additional days.
    * After the UI/UX Design, the Frontend Development (Activity G) can start and is expected to last for 25 days.
23. Testing Phase: This phase includes two parts:
    * Testing Phase 1 (Activity H) which would last for 5 days
    * This will be followed by the User Acceptance Testing (Activity I) lasting for 10 days.
24. Closing Phase: This includes the Final Revision (Activity J), Launch Preparation (Activity K) that would both take 5 days each, leading to the final App Launch (Activity L) which would be done in a day.

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1. Research and understand the requirements for green programming – 6 hours
2. Define project scope and objectives - 2 hours
3. Design the website structure and layout – 2 hours
4. Develop frontend of the website – 6 hours
5. Develop backend of the website – 1.5 hours
6. Perform usability testing - 1 hours
7. Complete content creation for website -1 hours
8. Finalize testing and bug fixing – 10 hours
9. Deployment of the website – 12 hours

Now we'll estimate time for each task using Planning Poker. To do this each team member will have a set of cards from 0 to 100. For each task, each team member selects a card that represents their estimation of work effort and then all reveal their cards at the same time. Discussion follows, in particular if there are widely differing estimates. The process continues until consensus is reached.

Planning Poker is an engaging, fun tool for estimating software development efforts, and drives meaningful conversations about the work to be done.

Please remember that these times are just estimates, not deadlines. They will simply help us to create a preliminary schedule. It's important to continuously re-evaluate and adjust these time estimates during the execution phase of the project.

Now, let’s start estimating these tasks.

| **Task Name** | **Duration** | **Start Date** | **End Date** | **Assigned To** | **Dependencies** |
| --- | --- | --- | --- | --- | --- |
| Define Objectives | 2 days | 01/22/2025 | 01/23/2025 | Team Lead | - |
| Research Background | 5 days | 01/24/2025 | 01/28/2025 | Researcher | Define Objectives |
| Develop WBS | 3 days | 01/29/2025 | 01/31/2025 | Team Lead, Analyst | Research Background |
| Develop Initial Concepts | 4 days | 02/01/2025 | 02/04/2025 | Designer | Develop WBS |
| Create Mockups/Prototypes | 6 days | 02/05/2025 | 02/10/2025 | Designer, Developer | Initial Concepts |
| Develop Core Features | 10 days | 02/11/2025 | 02/20/2025 | Developer | Mockups/Prototypes |
| Perform Integration Testing | 5 days | 02/21/2025 | 02/25/2025 | Tester | Core Features |
| Prepare Documentation | 4 days | 02/26/2025 | 02/29/2025 | Documentation Specialist | Integration Testing |
| Final Review & Adjustments | 3 days | 03/01/2025 | 03/03/2025 | Entire Team | Prepare Documentation |
| Present to Stakeholders | 2 days | 03/04/2025 | 03/05/2025 | Team Lead | Final Review |

Exercise 12: Gantt Chart

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| **Chart Details:** |
| | **Task Name** | **Duration** | **Start Date** | **End Date** | **Assigned To** | **Dependencies** | | --- | --- | --- | --- | --- | --- | | Define Objectives | 2 days | 01/22/2025 | 01/23/2025 | Team Lead | - | | Research Background | 5 days | 01/24/2025 | 01/28/2025 | Researcher | Define Objectives | | Develop WBS | 3 days | 01/29/2025 | 01/31/2025 | Team Lead, Analyst | Research Background | | Develop Initial Concepts | 4 days | 02/01/2025 | 02/04/2025 | Designer | Develop WBS | | Create Mockups/Prototypes | 6 days | 02/05/2025 | 02/10/2025 | Designer, Developer | Initial Concepts | | Develop Core Features | 10 days | 02/11/2025 | 02/20/2025 | Developer | Mockups/Prototypes | | Perform Integration Testing | 5 days | 02/21/2025 | 02/25/2025 | Tester | Core Features | | Prepare Documentation | 4 days | 02/26/2025 | 02/29/2025 | Documentation Specialist | Integration Testing | | Final Review & Adjustments | 3 days | 03/01/2025 | 03/03/2025 | Entire Team | Prepare Documentation | | Present to Stakeholders | 2 days | 03/04/2025 | 03/05/2025 | Team Lead | Final Review | |
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Rapport Capstone Project